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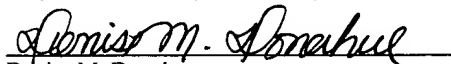
Attorney's Docket No.: A0602/7002

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Michael J. Barrett et al.  
Serial No: 09/721,326  
Confirmation No: 7238  
Filed: November 22, 2000  
For: LOW-HEIGHT, LOW-COST HIGH-GAIN ANTENNA  
AND SYSTEM FOR MOBILE PLATFORMS  
Examiner: J. Logsdon  
Art Unit: 2662  
Conf. No. 7238

CERTIFICATE OF MAILING UNDER 37 C.F.R. §1.8(a)

The undersigned hereby certifies that this document is being placed in the United States mail with first-class postage attached, addressed to Mail Stop AF, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on the 10th day of June, 2004.

  
Denise M. Donahue

Mail Stop AF  
Commissioner for Patents  
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TRANSMITTAL LETTER

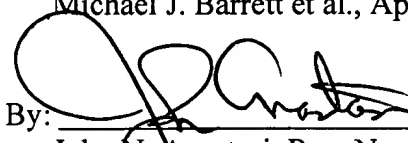
Sir:

Transmitted herewith are the following documents:

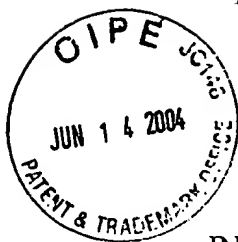
- ☒ Response after Final under 37 C.F.R. 1.116; and
- ☒ Return Postcard

If the enclosed papers are considered incomplete, the Mail Room and/or the Application Branch is respectfully requested to contact the undersigned at 617-395-7000, Cambridge, Massachusetts. The Commissioner is hereby authorized to charge any deficiencies or overpayments to Deposit Account 50/2762; Ref. No. A0602-7002. A duplicate of this sheet is enclosed.

Respectfully submitted,  
Michael J. Barrett et al., Applicants

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Date: June 10, 2004



22/ RESPONSE DE

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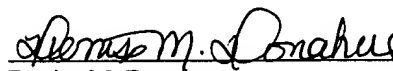
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Denise M. Donahue

Mail Stop AF  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

RESPONSE AFTER FINAL

Sir:

In response to the Final Office Action mailed April 2, 2004, Applicants respectfully request entry of this response and reconsideration of the claims pending.

Claims 1-8, 10, 13-22, 24, 27-31, 35, 40-47, 49-61, 63-86 and 88-150 are pending for examination with claims 1, 2, 15, 30, 68, 90 and 98 being independent claims. No claims have been amended, added or cancelled by this response.

Rejections Under 35 U.S.C. §103

1. Simon

claims 1-8, 10, 13-17, 19-22, 24, 29-31, 35, 40-47, 49-61, 63-67, 68-86, 88, 89 and 90-150 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Simon (U.S. Patent No. 5,530,909). Applicants respectfully traverse this rejection.

With regard to independent claims 1, 2, 15, 30, 60, 69, 90 and 98, the Examiner asserts that it would have been obvious to modify Simon to incorporate the features of: “altering one of a direction of travel and velocity of the second passenger vehicle in response to information received by the receiver;” “storing data when the second passenger vehicle becomes disconnected from the information network so that the information can be provided when the second passenger vehicle is reconnected to the information network;” “that the information signal is transmitted in a plurality of directions, at least one direction being along a pathway [on which the first and second passenger vehicles are located];” “wherein the information signal includes a first portion of information intended for the first passenger vehicle and a second portion of information intended for the second passenger vehicle, and wherein the step of retransmitting the information signal with the first transceiver unit does not include retransmitting the first portion of information;” and “a second interface coupled to the receiver which presents the information signal for access by a passenger” because the Examiner takes Official Notice that these features are well known in the art and that such an arrangement (i.e., Simon modified to incorporate any of these features) has been well known in the art as a means for designing a system that is responsive to current condition, fault tolerant, secure and capable of serving several users simultaneously. Applicants respectfully disagree.

Specifically, Applicants respectfully disagree that an arrangement of any of the above-mentioned features, in combination with the other elements recited in any of Applicants independent claims 1, 2, 15, 30, 60, 68, 90 and 98 is well known in the art. Applicants respectfully request that the Examiner support this assertion with documentary proof, such as a prior art reference. The Examiner is relying specifically on the “facts” of which Official Notice is being taken, namely the elements recited in Applicants’ claims that are not disclosed or suggested by Simon, as the primary grounds of rejection – the 103 rejection could not stand without these elements. Therefore, it is appropriate that the Examiner provide evidence, such as a prior art reference, to support the statement that these elements are well known the art, because Applicants assert that they are not. See MPEP § 2144.03 “the facts so noticed...should not comprise the principle evidence upon which a rejection is based.”

The prior art of record does not disclose or suggest each and every limitation recited in Applicants' independent claims 1, 2, 15, 30, 60, 68, 90 and 98. Accordingly, withdrawal of the rejection of these claims is respectfully requested.

With regard to dependent claims 3-8, 10, 13, 14, 16, 17, 19-22, 24, 29, 31, 35, 40-47, 49-59, 61, 63-67, 69-86, 88, 89, 91-97 and 99-150, each dependent claim is allowable for at least the same reasons as discussed for its respective base claim. Accordingly, for the sake of brevity and conciseness, Applicants do not at this time argue the patentability of each dependent claim individually. However, Applicants do not necessarily agree with the Examiner's interpretation and/or characterization of any of the dependent claims and reserve the right to argue their patentability individually in the future. Withdrawal of the rejection of dependent claims 3-8, 10, 13, 14, 16, 17, 19-22, 24, 29, 31, 35, 40-47, 49-59, 61, 63-67, 69-86, 88, 89, 91-97 and 99-150 is respectfully requested.

## 2. Wilson

Claim 1 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Wilson (U.S. Patent No. 6,141,533). Applicants respectfully traverse this rejection.

The Examiner states in the Office Action that Wilson discloses a method of providing information to a passenger vehicle (subscriber unit 202 in Fig. 2) located on a pathway in an area where signal coverage is not available from an information source...the method comprising transmitting an information signal containing the information with a transmitter located at the information source, receiving the information signal with a first transmitter/receiver unit located on a passenger vehicle...located on the pathway, retransmitting the information signal to a receiver located on the passenger vehicle located on the pathway, and that the information signal is transmitted from the first transmitter/receiver unit to the receiver along the pathway. The Examiner acknowledges that Wilson fails to disclose altering one of a direction of travel and velocity of the passenger vehicle in response to information received by the receiver. Specifically, the Examiner states that he takes Official Notice that it has been common practice in the art to alter one of a direction of travel and velocity of the passenger vehicle in response to information received by the receiver. The Examiner further states that it would have been obvious to modify Wilson so that it discloses

the altering of one of a direction of travel and velocity of the passenger vehicle in response to information received by the receiver because the Examiner takes Official Notice that such an arrangement has been well known in the art as a means to enable the system to respond to current conditions. Applicants respectfully disagree.

Applicants disagree that it is well known in the art to transmit and retransmit information between passenger vehicles, along a pathway, and to alter one of a direction of travel and velocity of one of the passenger vehicles in response to receiving that information. Applicants respectfully request that the Examiner provide evidence, such as a prior art reference, to support the statement that such was well known in the art at the time the invention was made (see MPEP § 2144.03). Applicants also disagree that the above-described arrangement has been well known in the art as a means to enable a system to respond to current conditions, and respectfully request that the Examiner also provide a reference to support that statement. Absent such a showing of evidence, Applicants respectfully request that the Examiner withdraw the statements.

Contrary to the statements in the Office Action, Applicants assert that it is not well known in the art, and not disclosed or suggested in the art of record, to alter one of a direction of travel and velocity of the second passenger vehicle in response to information received by the receiver from the first transmitter/receiver unit along the pathway, as is claimed in Applicants' claim 1. Applicants further disagree that it would have been obvious to modify Wilson to incorporate such a feature because this feature is not disclosed by the art of record and because there is no suggestion in Wilson that it would be advantageous or desirable to alter a direction or velocity of any of the mobile repeaters or subscriber units.

Therefore, for at least these reasons, Wilson does not render obvious Applicants' claim 1 and withdrawal of the rejection of claim 1 is respectfully requested.

### 3. Larsen

Claims 1, 2, 15, 30 and 68 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Larsen (U.S. Patent No. 6,473,617). Applicants respectfully traverse this rejection.

As discussed in Applicants' previous response, Larsen discloses a cellular network comprising a plurality of mobile stations and a plurality of base stations that define cells of non-overlapping zones of coverage (col. 3, lines 34-45). According to Larsen, the mobile stations transmit data messages opportunistically between themselves and other stations in order to relay messages from an originating station to a receiving station and effectively "fill in" gaps in coverage between adjacent cells (col. 4, lines 1-9). The Examiner acknowledges that Larsen fails to disclose a number of features recited in Applicants' claims.

With regard to claims 1, 2, 15, 30 and 68, the Examiner asserts that it would have been obvious to modify Larsen to incorporate the features of: "altering one of a direction of travel and velocity of the second passenger vehicle in response to information received by the receiver;" "storing data when the second passenger vehicle becomes disconnected from the information network so that the information can be provided when the second passenger vehicle is reconnected to the information network;" "that the information signal is transmitted in a plurality of directions, at least one direction being along a pathway [on which the first and second passenger vehicles are located];" "wherein the information signal includes a first portion of information intended for the first passenger vehicle and a second portion of information intended for the second passenger vehicle, and wherein the step of retransmitting the information signal with the first transceiver unit does not include retransmitting the first portion of information;" and "a second interface coupled to the receiver which presents the information signal for access by a passenger" because the Examiner takes Official Notice that these features are well known in the art and that such an arrangement (i.e., Larsen modified to incorporate any of these features) has been well known in the art as a means for designing a system that is responsive to current condition, fault tolerant, secure and capable of serving several users simultaneously. Applicants respectfully disagree.

Specifically, Applicants respectfully disagree that an arrangement of any of the above-mentioned features, in combination with the other elements recited in any of Applicants independent claims 1, 2, 15, 30 and 68, is well known in the art. Applicants respectfully request that the Examiner support this assertion with documentary proof, such as a prior art reference. The Examiner is relying specifically on the "facts" of which Official Notice is being taken, namely the elements recited in Applicants' claims that are not disclosed or

suggested by Larsen, as the primary grounds of rejection – the 103 rejection could not stand without these elements. Therefore, it is appropriate that the Examiner provide evidence, such as a prior art reference, to support the statement that these elements are well known the art, because Applicants assert that they are not. See MPEP § 2144.03 “the facts so noticed...should not comprise the principle evidence upon which a rejection is based.”

The prior art of record does not disclose or suggest each and every limitation recited in Applicants’ independent claims 1, 2, 15, 30 and 68. Accordingly, withdrawal of the rejection of these claims is respectfully requested.

#### 4. Steele

Claims 1-8, 10, 13-22, 24, 29-31, 40-47, 50, 52, 57, 58 and 60 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Steele. Applicants respectfully traverse this rejection.

As discussed in Applicants’ previous response, Steele discloses a radio communication network comprising a plurality of relatively closely spaced-apart mobile stations each comprising a transmitter and a receiver and being arranged to act as controlled repeaters to relay incoming traffic signals to nearby mobile stations. The Examiner asserts that Steele discloses a method and system for allowing a mobile station (hidden mobile station) and a fixed base station (information source) which are out of range of direct communication, to communicate by using other mobile stations (DMS) as repeaters. The Examiner asserts that the antennas used in Steele are inherently directional antennas because all antennas, whether unidirectional, omnidirectional or multidirectional, are directional. The Examiner acknowledges that Steele fails to disclose that the mobile stations are on passenger vehicles. The Examiner further asserts that Steele discloses that all of the mobile stations can have various velocities.

With regard to the statement in the Office Action that “the antennas used in Steele are inherently directional antennas because all antennas, whether omni-directional, unidirectional or multi-directional, are directional,” Applicants respectfully disagree. As stated in Applicants’ previous response, the term “directional antenna” is a term of art, understood by those of skill in the art to mean an antenna that “focuses signals so that they come and go in a

particular pattern, with a particularly strong signal in one direction.” Omni-directional antenna are understood in the art not to be directional antennas because they define a beam pattern that is substantially uniform in all directions, not particularly strong in one direction.

Applicants agree that Steele discloses that the mobile stations can have various velocities, but disagree with the Examiner’s characterization that this means “they can travel in any direction at any speed.” Rather, Applicants wish to clarify that “various velocities,” means “some directions at some variety of speeds.” In addition, Applicants are unclear as to the meaning of the Examiner’s statement that the “Examiner takes Official Notice that such an arrangement has been well known in the art.” To the extent that the Examiner means that the system disclosed in Steele is well known, Applicants agree because Steele is public knowledge. To the extent that the Examiner’s statement refers to something more than the system and method explicitly disclosed in Steele, Applicants respectfully traverse this statement and request that the Examiner clarify exactly what he regards as being “well known.”

The Examiner further asserts that it would have been obvious to modify Steele to incorporate the features of: “altering one of a direction of travel and velocity of the second passenger vehicle in response to information received by the receiver;” “storing data when the second passenger vehicle becomes disconnected from the information network so that the information can be provided when the second passenger vehicle is reconnected to the information network;” “that the information signal is transmitted in a plurality of directions, at least one direction being along a pathway [on which the first and second passenger vehicles are located];” “wherein the information signal includes a first portion of information intended for the first passenger vehicle and a second portion of information intended for the second passenger vehicle, and wherein the step of retransmitting the information signal with the first transceiver unit does not include retransmitting the first portion of information;” and “a second interface coupled to the receiver which presents the information signal for access by a passenger” because the Examiner takes Official Notice that these features are well known in the art and that such an arrangement (i.e., Steele modified to incorporate any of these features) has been well known in the art as a means for designing a system that is responsive to current



condition, fault tolerant, secure and capable of serving several users simultaneously.

Applicants respectfully disagree.

In particular, Applicants respectfully assert that because the elements of which the Examiner is taking Official Notice are critical to maintaining the rejection, i.e., are primary evidence upon which the rejection is based (the 103 rejection cannot stand without these elements), the Examiner must provide documentary evidence, such as a prior art reference, to support the statements that these elements are "well known" in the art. (see MPEP § 2144.03 "the facts so noticed...should not comprise the principle evidence upon which a rejection is based"). Applicants assert that they are not well known.

Therefore because the prior art of record does not disclose or suggest each and every limitation recited in Applicants' independent claims 1, 2, 15 and 30, withdrawal of the rejection of these claims is respectfully requested.

Each of dependent claims 3-8, 10, 13, 14, 16-22, 24, 29, 31, 40-47, 50, 52, 57 and 58 depends, either directly or indirectly, from one of independent claims 1, 2, 15, 30 and 60 discussed above and is therefore allowable for at least the same reasons as discussed for its respective base claim. Accordingly, for the sake of brevity and conciseness, Applicants do not at this time argue the patentability of each dependent claim individually. However, Applicants do not agree that the Examiner's characterization of any of the dependent claims is proper and reserve the right to argue the patentability of each dependent claim individually in the future, if deemed necessary.

Withdrawal of the rejection of dependent claims 3-8, 10, 13, 14, 16-22, 24, 29, 31, 40-47, 50, 52, 57 and 58 is respectfully requested for the reasons stated above.

#### 5. Simon and Rootsey

Claims 18 and 28 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Simon in view of Rootsey (U.S. Patent No. 5,995,804). Applicants respectfully traverse this rejection.

Claims 18 and 28 depend from independent claim 15 and are therefore allowable for at least the same reasons as discussed for claim 15. Therefore, Applicants do not set forth specific arguments relating to the patentability of claims 18 and 28 individually, but reserve

the right to do so in the future. However, Applicants do not agree that the suggested combination of Simon and Rootsey is proper, nor that the basis for rejection of claims 18 and 28 is proper. In particular, Applicants do not agree that the Examiner's reasoning for asserting the obviousness of claims 18 and 28 is sound. Withdrawal of the rejection of claims 18 and 28 is respectfully requested.

#### 6. Simon and Drummer

Claim 27 stands rejected under 35 U.S.C. §103(a) as being unpatentable over Simon in view of Drummer (U.S. Patent No. 5,880,693). Applicants respectfully traverse this rejection.

Claim 27 depends from claim 15 and is therefore allowable for at least the same reasons as claim 15. Therefore Applicants do not set forth specific arguments relating to the patentability of claim 27 individually, but reserve the right to do so in the future. However, Applicants do not agree that the suggested combination of Simon and Drummer is proper, nor that the basis for rejection of claim 27 is proper. In particular, Applicants do not agree that the Examiner's reasoning for asserting the obviousness of claims 27 is sound. Withdrawal of the rejection of claim 27 is respectfully requested.

#### 7. Robert

Claims 1-3, 15, 30 and 68 stand rejected under 35 U.S.C. §103(a) as being unpatentable over Robert (U.S. Patent No. 6,104,712). Applicants respectfully traverse this rejection.

The Examiner asserts that it would have been obvious to modify Robert to incorporate the features of: "altering one of a direction of travel and velocity of the second passenger vehicle in response to information received by the receiver;" "storing data when the second passenger vehicle becomes disconnected from the information network so that the information can be provided when the second passenger vehicle is reconnected to the information network;" "that the information signal is transmitted in a plurality of directions, at least one direction being along a pathway [on which the first and second passenger vehicles are located];" "wherein the information signal includes a first portion of information intended for the first passenger vehicle and a second portion of information intended for the second

passenger vehicle, and wherein the step of retransmitting the information signal with the first transceiver unit does not include retransmitting the first portion of information;" and "a second interface coupled to the receiver which presents the information signal for access by a passenger" because the Examiner takes Official Notice that these features are well known in the art and that such an arrangement (i.e., Larsen modified to incorporate any of these features) has been well known in the art as a means for designing a system that is responsive to current condition, fault tolerant, secure and capable of serving several users simultaneously. Applicants respectfully disagree.

Specifically, Applicants respectfully disagree that an arrangement of any of the above-mentioned features, in combination with the other elements recited in any of Applicants independent claims 1, 2, 15, 30 and 68, is well known in the art. Applicants respectfully request that the Examiner support this assertion with documentary proof, such as a prior art reference. The Examiner is relying specifically on the "facts" of which Official Notice is being taken, namely the elements recited in Applicants' claims that are not disclosed or suggested by Larsen, as the primary grounds of rejection – the 103 rejection could not stand without these elements. Therefore, it is appropriate that the Examiner provide evidence, such as a prior art reference, to support the statement that these elements are well known the art, because Applicants assert that they are not. See MPEP § 2144.03 "the facts so noticed...should not comprise the principle evidence upon which a rejection is based."

The prior art of record does not disclose or suggest each and every limitation recited in Applicants' independent claims 1, 2, 15, 30 and 68. Accordingly, withdrawal of the rejection of these claims is respectfully requested.

Dependent claim 3 depends from either of claims 1 and 2, and is therefore allowable for at least the same reasons as discussed for claims 1 and 2. Accordingly, withdrawal of the rejection of claim 3 is respectfully requested.

#### Conclusion

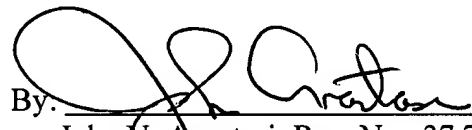
In view of the foregoing amendments and remarks, this application should now be in condition for allowance. A notice to this effect is respectfully requested. If the Examiner

believes, after this amendment, that the application is not in condition for allowance, the Examiner is requested to call the Applicants' attorney at the telephone number listed below.

If this response is not considered timely filed and if a request for an extension of time is otherwise absent, Applicants hereby request any necessary extension of time. If there is a fee occasioned by this response, including an extension fee, that is not covered by an enclosed check, please charge any deficiency to Deposit Account No. 50/2762.

Respectfully submitted,

Michael J. Barrett et al., Applicants

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